## Welcome to...

# Fluoroscopy!

During your time at BCH, you will spend about one week in fluoroscopy. You will learn the basics of pediatric GU imaging, mostly VCUGs, which you should feel comfortable performing from beginning to end on a boy or a girl. You will also learn GI imaging, including upper GI, small bowel follow-through, enemas and modified swallow studies.

### THE WORK DAY:

You should arrive at 7:30 AM for AM GU rounds. To prepare for rounds, use the Allocade list to familiarize yourself with the patients, add pertinent information from the EMR to the notes section and review relevant prior imaging. Looking up the patients the day before is highly advised. You must know the patient, understand the purpose of the study and how it is to be performed. You must be clear on these points and the plan before meeting the patient.

At 1 PM, there will be a second set of rounds for the afternoon GI patients. The same rules apply as for AM rounds.

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Patients Organize Settings	CT - All Sites (10)		Boston (15)		S Boston (2	
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## THE WORKLIST:

On Radstar, subscribe to "Boston" – GI/GU If the volume of fluoroscopy studies is low, your attending may instruct you to subscribe to the CR (xray) worklist and read radiographs.

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## THE REPORTS:

Go to the "Auto Text Editor" tab and copy the macros from "**Resident, Fluoro**" Whenever possible use these macros for ALL of your report. If you are doing an uncommon exam with no appropriate macro available, try to structure your report in a similar manner.

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### GOALS:

### 1) Cleveland Clinic Modules

## By Tuesday of your fluoroscopy rotation, you should complete the following assigned modules, and email the transcripts to Abby.

Intussusception Malrotation and Midgut Volvulus (completed the first week) Jejunal and Ileal Stenosis/Atresia Newborn Low Intestinal Obstruction Vesicoureteral Reflux

**2)** To help ensure that you get to be involved in a variety of cases during the week, we have created a basic checklist of studies that should be your minimum goal for the week. Please have your attending check off on these studies as you demonstrate proficiency in performing them. Your ability to complete all of the recommended studies will of course dependent on the patient schedule for the week.

#### Attending Sign Off

VCUG – neonate, female	
VCUG- neonate, male	
VCUG- older female	
VCUG- older male	
UGI	□
UGI	
Enema	
Post Op Esophagram	
Line Study	
G-Tube/GJ Tube Study	<u> </u>
Proficiency in Low Dose Fluoro	Щ

## THE BASICS:

# See the provided powerpoint to learn the basics of UGI and VCUG technique.

## Here is some background information on contrast use in fluoro:

Study	Indication	Contrast Media
	vomiting (especially bilious)	barium sulfate suspension or iso-osmolar water soluble (premature infant)
	acute or chronic abdominal pain	barium sulfate suspension
	choking sensation or dysphagia	barium sulfate suspension
Upper GI or Esophagram	recent esophageal, gastric or small bowel surgery	low osmolar water soluble
	suspected esophageal, gastric or small bowel injury (blunt, penetrating, or iatrogenic trauma)	low osmolar water soluble
	abdominal pain or obstruction	barium sulfate suspension or iso-osmolar water soluble (premature infant)
Upper GI with small bowel follow through	weight loss or suspected inflammatory bowel disease	barium sulfate suspension
	premature infant with concern for necrotizing enterocolitis	iso-osmolar water soluble
Tubo study	Check placement of enteric or cecostomy tube	low osmolar water soluble or barium sulfate suspension
Tube study	Placement of NJ tube	low osmolar water soluble or barium sulfate suspension

## Indications for oral contrast media in pediatric fluoroscopy

## Indications for oral contrast media in pediatric fluoroscopy

Study	Indication	Contrast Media
Small bowel enteroclysis	suspected small bowel disease	Barium sulfate suspension +/- hydroxypropyl methylcellulose, CO2, or air
Modified barium swallow (MBS)	dysphagia, suspected aspiration, pneumonia, choking with feeding, developmental delay	barium sulfate suspension (various consistencies: thin, nectar, honey, purée, solid foods)

## Indications for stomal, sinus or enterocutaneous fistula contrast media in pediatric fluoroscopy

Study	Indication	Contrast Media		
Stomagram	evaluation of parastomal stricture or obstruction	ionic low osmolar water soluble		
Fistulogram or Sinogram	suspected enterocutaneous fistula or cutaneous sinus	low osmolar water soluble, followed by barium sulfate suspension if necessary		

## Iodine content and osmolality of enteric contrast media at Boston Children's Hospital

Contrast Media	Iodine Content (mg/ml)	Osmolality* (mOsm/kg water)
Iothalamate Meglumine (Cysto-Conray II) **	81	400
Iohexol (Omnipaque) 180	180	331
Ioversol (Optiray) 240***	240	502
Ioversol (Optiray) 320***	320	702
Diatrizoate Meglumine (Gastrografin or Gastroview)	370	1940
Barium Sulfate Suspension	NA	NA

\*Normal serum osmolality is 275 - 295mOsm/kg

\*\*Alternate is dilute Cystografin (Diatrizoate Meglumine)

\*\*\*Can substitute with similar LOCM listed in Appendix A, ACR Manual on Contrast Media 10.2

### Indications for rectal contrast media in pediatric fluoroscopy

Study	Indication	Contrast Media		
Diagnostic	low intestinal obstruction in newborn	ionic low osmolar water soluble		
enema	concern for NEC stricture	ionic low osmolar water soluble		
	intractable constipation	ionic low osmolar water soluble		
Therapeutic enema	meconium ileus	dilute high ismolar water soluble (diluted 50% with water)		

Indications for rectal contrast m	edia in pediatric fluoroscopy
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Study	Indication	Contrast Media
	DIOS (distal intestinal obstruction syndrome) also known as meconium ileus equivalent	dilute high ismolar water soluble (diluted to 25% with iothalamate meglumine)
Defecography	intractable constipation	barium sulfate suspension paste
Air enema	intussusception	air (pneumatic reduction)

We hope that you have a fun and educational time during your fluorosocopy rotation, and if you have any questions or concerns, don't hesitate to ask me.

Sincerely,



Mei Chow